Submission No 508

INQUIRY INTO HEALTH OUTCOMES AND ACCESS TO HEALTH AND HOSPITAL SERVICES IN RURAL, REGIONAL AND REMOTE NEW SOUTH WALES

Name: Name suppressed

Date Received: 14 January 2021

Submission into the health of outcomes and access to health and hospital services in rural/regional and remote NSW

This submission will focus on Type 2 Diabetes Mellitis (T2DM) health outcomes and the inadequate access to hospital endocrine services in rural/regional and remote NSW. The prompt for making this submission is the increasing numbers of young people (in particular males) that I see in the Orange Ambulatory Care and Hospital in the Home Service with severe diabetic foot infections and complications. It is a haunting image to slowly see the progressive amputation of a young person's foot over several years. By young, I am talking people aged 30 to 50. If this was any other disease it would be headline news. The only comparative scene I can think of is a war zone where bits of legs have been torn apart by grenades and the person still has to go back into battle when they have been stitched back together.

The other major gap in care I wish to highlight is a lack of public endocrinoglists in large regional hospitals and the lack of stepdown high risk diabetes transition teams upon discharge from tertiary regional hospitals with the aim to prevent the revolving door admissions of many with complications secondary to T2DM. T2DM is a growing epidemic that appears to have dropped off the rural planning agenda in terms of provision of hospital onsite specialist and multidisciplinary care provision.

Telehealth and remote monitoring are increasingly being touted as the cure all solution. These service models can be very useful and compliment improved care but cannot ever replace a lack of basic on-site specialist services at all major regional hospitals to cope with diabetic crises, high level inpatient medical care, increasing rates of gestational diabetes and more complicated cases needing close monitoring for 4-6 weeks to transition to primary care. Endocrinologists also play a vital role in liaising and supporting primary care practitioners to cope with the increasingly complex chronic care health conditions that are encountered.

As a GP based in Orange, NSW I will use examples that particularly focus on the setting of a large rural regional referral hospital to highlight issues for this senate inquiry.

Why should the senate inquiry be concerned about Type 2 Diabetes Mellitis?

Australia have an existing exponentially growing pandemic of T2DM and associated obesity. More that 466,000 people in NSW are currently living with diabetes with 85% due to T2DM. There is likely a further 200,000 living with T2DM in NSW who are not yet diagnosed (for every 2 people diagnosed with T2DM diagnosed there is estimated to be 1 silent undiagnosed case). Almost 1 in 4 Australians aged 25 years plus has either diabetes or prediabetes. A higher percentage of those with T2DM live in rural and regional NSW and are more likely to be from socially disadvantaged backgrounds, have poor literacy and social supports, be of Aboriginal or Torres Strait Islander (ATSI) background, not be engaged in regular primary care and have either nil or limited access to public endocrinology or dental services.

Many valuable lessons have been learnt from the effective rapid response to Covid 19 over the last 12 months. I would recommend to the senate inquiry that the same type of rapid and universal response is needed now to address the increasing burden of T2DM. Even more effort needs to be put into regional and rural responses where the disease burden is markedly higher and where the lack of many basic health services makes access to treatment difficult and in some case impossible.

We get daily briefings on the number of new cases of Covid19 per day. If you apply this type of briefing to T2DM it would read that in NSW 297 people are diagnosed with diabetes each day with the majority being T2DM.

Covid 19 has brought the concept of flattening the curve into mainstream language. In Australia the prevalence of T2DM has increased dramatically over the last 2 decades. The number of people with T2DM diabetes is rapidly growing each year, most likely the result of rising overweight and obesity rates, lifestyle and dietary changes, and an ageing population. Unless the curve is flattened urgently now all health care sectors and hospitals will be stretched and way over capacity with diabetes related complications within 20-25 years.

You may be asking what are these complications? It is important to remember that T2DM is a multiorgan disease and that the complications silently creep up over a 10 to 30 year period. T2DM is frequently an underlying driving high risk factor in many other diseases that is easily overlooked or forgotten. When the person comes in with a heart attack, stroke or cancer all the excitement and action and services are there to address that individual health issue. Frequently the underlying driving factors such as T2DM are often not looked into, dealt with or prevented prior to the acute health issue and frequently not caught in the health hospital statistics and mortality data.

Diabetes has a significant, and often preventable, impact on the health and wellbeing of the Australian population. In 2011, diabetes was the underlying cause of 3 per cent of all deaths and an underlying or associated cause of 10 per cent of all deaths. There are a significant number of diabetes-related complications, many of which are preventable. They include heart attack, stroke, amputation, blindness, kidney failure, depression and nerve disease.

Example of some of the risks of people living with T2DM include:

- Having a 60% higher risk dementia
- Being 8 times more likely to experience heart failure and 28% more likely to die of heart failure
- Being at increased risk of several types of cancer (20% greater risk breast cancer, 50% higher risk bowel cancer, twice as likely to develop endometrial cancer and liver cancer and 2-3 times more likely to develop pancreatic cancer)
- 1 in 2 will develop chronic kidney disease with many requiring expensive renal dialysis
- High rates of eye complications including retinopathy with loss of vision

This is only a small example of the complications, as the list goes on. A 45 yr old with diabetes will live 6 years less than a person without diabetes and as shown further on those diagnosed at a younger age have a greater reduction in lifespan.

To provide you with some background data, diabetes long-term epidemiology using big datasets linked to the National Diabetes Service scheme data and to National Death Index and the Australian cancer database show rising cancer rates in diabetes and increasing gap in life expectancy for those with diabetes. Linkage also now occurs from diabetes register to national prescription data, national kidney dialysis and transplant register.

Long term outcomes from the 12 year follow up Ausdiab survey in 2011/12 found that:

- Every year 0.7% of adults develop diabetes
- **Living in the most socially disadvantaged areas of Australia doubles the risk of developing diabetes…rural and regional area have higher rates of socially disadvantaged areas**
- Over 12 yrs the average gain in waist circumference was 5.3 cm and greater in women than men, and in younger than older people
- People with previously known diabetes have a similar risk of mortality to smokers
- Among over 60's, cognitive impairment was more common among those with diabetes or with obesity
- Among the over 60's, having diabetes, obesity or CKD increased the risks of having physical disability
- Diabetes, obesity and kidney disease each increase the risks of having depression
- People with diabetes, obesity or kidney disease are more likely to be admitted to hospital then people without these conditions
- The percentage of people developing diabetes over 5 yrs between the studies was twice as high for those who did no physical activity compared to those who did more than 150 minutes per week of physical activity
- People with pre diabetes were 15 times more likely to develop diabetes than those with normal blood sugar levels
- Obese people were 4 times more likely to develop diabetes than those with normal weight

The baseline 1999/2000 Ausdiab study found that:

- For every known case of diabetes there was one undiagnosed case
- 7.5% of Australian population aged 25 yrs and older had diabetes and in people over 75 ys over 23.6% had diabetes

Clinical suspicion for type 2 diabetes needs to be high as type 2 diabetes is often asymptomatic - some refer to it as the silent epidemic. T2DM is increasingly developing in children, adolescents and young adults and pregnancy. This early-onset (also called 'young-onset') type 2 diabetes is concerning, as it results in a longer lifetime exposure to hyperglycaemia and the consequent complications. One could compare it to the UK strain of Covid 19 as there is emerging evidence that early-onset type 2 diabetes is a more aggressive disease compared with later-onset type 2 diabetes, and is accompanied by earlier onset and more rapid progression of macrovascular and microvascular complications.

In early-onset type 2 diabetes, life expectancy is reduced by 14 years in males and 16 years in females compared with their non-diabetic cohort. An Australian study showed 11% mortality over 20 years in a cohort of young adults diagnosed with T2DM between 15 and 30 years of age. Early-onset type 2 diabetes is usually defined as occurring under the age of 40 years. This can be further separated into child and adolescent (<18 years) and young adult (<25 years).

Gestational diabetes is also increasing at an alarming rate and if the mother has T2DM the child has a higher risk of developing T2DM.

The AIHW National Mortality Database shows:

- Diabetes contributed to about 16,700 deaths in 2018 (10.5% of all deaths) Diabetes was the underlying cause of death in around 4,700 deaths (28% of diabetes deaths). It was an associated cause of death in a further 12,000 deaths (72% of diabetes deaths)

- Diabetes is far more likely to be listed as an associated cause of death rather than the underlying cause of death. This is because it is often not diabetes itself that leads directly to death, but one of its complications that will be listed as the underlying cause of death on the death certificate. When diabetes was examined as an associated cause of death, the conditions most commonly listed as the underlying cause of death were cancer, coronary heart disease and stroke.

Where diabetes was listed as the underlying and/or associated cause of death:

- 5% were due to type 1 diabetes (800 deaths)
- 56% were due to type 2 diabetes (9,500 deaths)
- 39% were due to other or unspecified diabetes (6,400 deaths)

Note: Examining only the underlying cause of death can underestimate the impact of diabetes on mortality (Harding et al. 2014). Further, deaths from diabetes are known to be under-reported in national mortality statistics, as diabetes is often omitted from death certificates as a cause of death (McEwen et al. 2011; Whitthall 1990).

There were about 1.2 million hospitalisations associated with diabetes in 2017–18, with 5% recorded as the principal diagnosis (the diagnosis largely responsible for hospitalisation) and 95% recorded as an additional diagnosis (a coexisting condition with the principal diagnosis or a condition arising during hospitalisation that affects patient management), according to the Australian Institute of Health and Welfare National Hospital Morbidity Database**. This represents 11% of all hospitalisations in Australia and is again likely an underdiagnosis.**

There were around 1.1 million hospitalisations with type 2 diabetes recorded as the principal and/or additional diagnosis in 2017–18, with 35,000 (3% of type 2 diabetes hospitalisations) as the principal diagnosis and 1,032,000 (97% of type 2 diabetes hospitalisations) as an additional diagnosis.

One can see the enormous current health cost burden and project that with a continued increasing incidence of T2DM, especially at a younger age, how the cost will expand and

stress an already overburdened health sector. So how can we flatten the curve, remembering that T2DM is largely a preventable disease.

So why and how to flatten the T2DM curve?

Type 2 diabetes is largely preventable, as it is often associated with lifestyle factors. Early identification and optimal management of people with T2DM diabetes can significantly reduce the risk of coronary artery disease, stroke, kidney failure, limb amputations and vision loss that is associated with type 2 diabetes.

Differences rural/regional/remote access to general health services

As per the Public Health Information Development Unit, Torrens University Australia report in 2017 "People in rural and remote (also referred to as Regional) New South Wales have worse health outcomes than those living in cities, across a range of indicators. They have a lower life expectancy by five to eight years, are more likely to die prematurely, report greater difficulties accessing health care, have higher potentially avoidable hospitalisations, and have a higher burden of chronic disease than other New South Wales residents. These health inequalities are largely preventable, as they are primarily the result of geographic isolation, greater socioeconomic disadvantage, lack of health care providers, lower levels of access to health services, fewer long-term employment opportunities, and greater exposure to injury risks.

Poorer health outcomes in rural and remote areas may be due to multiple factors including lifestyle differences and a level of disadvantage related to education and employment opportunities, as well as access to health services and ATSI background. Many of these lifestyle differences increase the baseline risk of developing T2DM which in many accounts likely is the cause of the lower life expectancy.

Of note patients with lower literacy or numeracy skills are at greater risk for poor diabetes outcomes and the most socially disadvantaged Australians are twice as likely to develop Type 2 diabetes.

In 2017–18 as per the Australian Institute of Health and Welfare Type 2 diabetes hospitalisation rates (as the principal and/or additional diagnosis) increased with remoteness and socio- economic disadvantage. Rates were:

- **2.5 times as high in *Remote and very remote* areas compared with *Major cities*.**
- **Twice as high among those living in the lowest socioeconomic areas compared with those living in the highest socioeconomic areas.**
- **Diabetes is the leading cause of non-traumatic lower-limb amputation.**

A Baker Institute Study published in October 2020 in the journal Diabetologia showed that up to date diabetes treatment depends on where you live, with people in remote areas being far less likely to access new diabetes medicines compared to those in metropolitan cities. The study of 1.2 million Australians living with type 2 diabetes, showed 2 yrs after Australia's newest diabetes drugs came onto the market, people living in remote areas were

62 % less likely to receive it than those in metropolitan cities. They used data from national diabetes services and matched it to PBS data tracking DPP4i's. SGLT2i's and GLP-1RA's. More recently SGLT2is and GLP-1RA's have been shown to also reduce risk of CKD progression, heart failure and CVD and new drugs have a range of other benefits including lower risk hypoglycaemia and potentially aiding weight loss. This study did not pinpoint exact reasons why this discrepancy occurs but was able to rule out some potential factors with affordably not appearing to be the issue. Proposed causes included lack of education and support for local doctors with doctors often juggling a higher patient load and a lack of regional and rural public endocrinology services. Diabetes Australia CEO Prof Greg Johnson has eloquently stated that '**this study provided important evidence of a postcode lottery in diabetes carer and health outcomes in Australia. It is time for a much stronger focus on people with diabetes in regional and remote Australia to eliminate this postcode lottery.'**

Aboriginal and Torres Strait Islander people are almost four times more likely to have diabetes than non-Indigenous Australians, and type 2 diabetes is a direct or indirect cause of 20% of Aboriginal and Torres Strait Islander people deaths. Furthermore, the average age of diabetes onset is younger for Aboriginal and Torres Strait Islander people than non-Indigenous Australians, and in some populations, Aboriginal children and adolescents have rates of type 2 diabetes that are 6–20 times higher than non-Indigenous youth. More ATSI live in rural and remote NSW and thus we see high rates of complications at a much younger age and early age mortality related to diabetes complications in our area related to T2DM.

In summary T2 DM is often asymptomatic, causes multi-organ damage, increased risk early death, increasingly younger people affected with a more aggressive form of T2DM, increases one's risk of cancer, heart attacks, heart failure, strokes, dementia, visual loss, chronic kidney disease, sepsis, and foot amputation. It is an increasing chronic and acute health burden **that is largely preventable** and affects more people in rural and regional areas. Why then is then is there so few services at a large regional area tertiary referral hospital in NSW? One would expect that there would be a need for more services per capita than a metropolitan tertiary hospital, rather than fewer.

Prevention is the key to flattening the curve (just like social isolation/masks and vaccination has been for Covid). We can reverse the trajectory with exercise, changes in diet and good diabetes control with medication and if this fails bariatric surgery for those that are overweight. Studies are showing that tight control in the first 10 years of management are vital in prevention of long term complications.

A local example of the inequity of endocrine rural regional services is that a level 5 major referral hospital such as Orange has not had a public endocrinologist for over 3 years. There is a lack of private endocrinologists in Orange with both endocrinologists (1 visiting part-time and 1 local working part-time) not able to take on new patients and a waiting list of over 12 months for new patients.

All major metropolitan hospitals have large endocrinology departments where it is considered to be a basic medical department. The tertiary referral hospitals consider it such a basic level of care that they do not see it as their responsibility to provide the service to Orange. They are happy to provide subspeciality support such as cardiothoracic surgery but expect the regional LHD's to provide basic specialist care.

Not only are many services not available but there has been a erosion of diabetes services over last 10 years despite an increasing disease burden and increasingly complex cases presenting at a younger age.

2010 Diabetes Public sector Services available in Orange

- Diabetes educator 2.5 FTE
- Diabetes nurse practitioner (0.5)
- Podiatrist 4 hrs/week
- GP 4 hour sessions monthly
- Endocrinologist 9 days per fortnight (3 clinics per week)
- Psychologist full time
- Dietician 3 days per week
- Aboriginal Chronic Disease Project Officer 2 days /week

2020 Diabetes Public sector services available in Orange reduced to:

- Diabetic Educators 2.5 FTE (2 FTE about to retire and nil training in place for replacement)

All the services present in 2010 have either not been replaced when people retire, refunded or remain vacant.

Some potential solutions include:

1. NSW Health undertake a transparent review of current and projected endocrine services across all of NSW and develop a per capita ratio of public endocrine service (including T2DM incidence data) that need to be available locally at all regional major hospitals and provide funding to establish these services where gaps are identified, or transfer funding from metropolitan services. Such a review needs to include specialist endocrinologists, diabetes educators, dieticians, multidisciplinary diabetes services and diabetic high risk foot clinics. Waiting times to see a specialist need to be factored in to current specialist workforce development and needs. In a structured care program, a multidisciplinary team of health practitioners provides comprehensive and holistic care to patients, helping them reach individualised health goals. A multidisciplinary care team allows the patient to benefit from a broad perspective on their health and wellbeing and can improve clinical outcomes and quality of life. For example, a patient's social difficulties may be detected during a diabetes educator evaluation or by a practice nurse, rather than during a routine medical consultation. Developing at least one specialist diabetes hub and spoke centre in every regional/rural LHD would be a great goal.

2. Urgent need to flatten the curve of the silent epidemic by a variety of methods such as:

- Raising public awareness of T2DM with major health promotion campaigns, such as the Diabetes Australia "If I had Known campaign" which promoted the often silent and asymptomatic nature of T2DM and informed people about the long term side effects of the disease such as heart failure, cancer and dementia. A recent survey showed that over 65 % of people with T2DM in Australia were not aware of the increased risk of heart failure, stroke, cancer and dementia and that if they had known would have taken the disease more seriously. Consider getting sponsorship and funding for public campaigning along the lines of pink ribbon day and pink cricket day test

- Large scale projects to prevent the increasing numbers of T2DM. This would include obesity prevention, healthy eating campaigns, **proceeding with the much talked about introduction of a sugar tax**, novel ideas such that large corporate fast-food outlets need to have a bush tucker option (e.g kangaroo which is a much healthier food option), teaching all high school students to cook, banning supermarkets/newsagents/takeway food outlets/petrol stations from having lollies/chocolates etc near the cash registers. The list of enforceable options goes on – labelling foods with a high sugar content as having a risk of developing cancer like cigarettes.

- Ways to increase and incentivise excerise – e.g. whole town projects with incentives to loose weight, walk number of steps per day with competitions and prizes. Wellington in NSW undertook such a project with great outcomes. Prescriptions for GP for exercise and gym membership and personal trainers etc.

- Diagnosing the 500,000 Australians living silently with T2DM who do not know they have it and are not being tightly managed in the first 10 years to prevent complications. Establish drop-in centres or drive through testing centres such as we have done for Covid 19. Imagine if we had 500,000 people with Covid and did not detect them. The long-term morbidity and mortality will be much greater with 500,000 undiagnosed cases of T2DM than 500,000 cases of Covid 19.

- Increasing support to primary care practitioners with easy access to endocrinologist telehealth support, dieticians, podiatrists, Aboriginal and Torres strait case workers and social workers, Primary care is a highly talented skilled workforce that is can be rapidly upskilled with specialist support underutilised. At the moment the data shows that rural GPs are not prescribing as many of the highly effective new novel diabetic oral agents compared to metropolitan GP's. Support and education could easily increase this. Local GP's who have established telehealth consultations with endocrinologists find this a highly effective way to assist in the care of complex patients and also upskill them in the process. There is a long waiting list to see many rural and regional GP's.

- Establish local regional large town high risk diabetic step down from hospital admissions multi-disciplinary teams to assist cases who struggle to get to appointments, cannot afford private services and get lost in the current system in regional large towns where the services are not available. These teams would benefit from employing a few GP's part time as part of the team to assist in breaking down the hospital /community divide and liaising care to ensure a transition back to a primary care provider. A large number of inpatients in regional hospitals do not have a dedicated GP and need support to transition or otherwise a publicly funded high risk model to co-ordinate care for them.

- Increase the opening hours and funding for hospital in the home and ambulatory care services at all regional hospitals to be open 7 days per week to assist in diabetes transition from the inpatient hospital wards to home and primary care when they are unstable and to provide high risk diabetic wound care. The usage of continuous glucose monitoring devices for up to 4 weeks could be of assistance in these situations in conjunction with a supervising high-risk diabetic outpatient team.

- Increase the number of publicly funded cases of metabolic or bariatric surgery for weight loss for large regional centres such as Orange where you have the skilled surgeon that can perform this work. The health sector only allows funds a very small number of cases per year despite metabolic or bariatric surgery having been shown to induce weight loss in people who have failed by other means and being shown to improve diabetes control. It seems odd that the health sector will fund as many

stents, open heart surgeries, heart transplants as needed but is reluctant to fund preventative surgical measures. Sleeve gastrectomy, Roux-en-Y gastric bypass and biliopancreatic diversion lead to sustained weight loss and normalisation of type 2 diabetes metabolic markers, although techniques vary in efficacy. The improvement in diabetes metabolic markers for Roux-en Y gastric bypass surgery at two-year follow-up was 52.7% in one meta-analysis, compared with 0.7% for medical management. For individuals who achieve improvement in diabetes metabolic markers with Roux-en-Y gastric bypass, the median period of sustained improvement is 8.3 years.

Metabolic surgery in patients with type 2 diabetes is associated in non-randomised studies with reduction in microvascular and macrovascular complications as well as reduced mortality. Moreover, studies have also shown that metabolic surgery can prevent or delay the onset of type 2 diabetes in people with obesity.

- Establishing regionally based multidisciplinary obesity/metabolism clinics such as exist in large metropolitan hospitals or at a minimum the metropolitan hospitals must provide outreach to all rural and regional areas. Primary Care practitioners struggle to motivate and support people to loose weight. Rural and regional areas have a higher proportion of people who are overweight and this type of service would be valuable especially at a centre such as Orange where you have the local skillset to provide bariatric surgery.
-
- Encouraging and funding more metropolitan hospital T2DM research projects to have a rural/regional arm to collect data much needed data on interventions and long term outcomes

Covid has shown us that it is possible to roll out complex and at times unpopular measures such as lockdowns, social distancing and the wearing of masks. The unpopular cultural changes such as a sugar tax for the public health of our community is possible and will have long term benefits and be much cheaper than a Covid 19 vaccine. Covid type response monthly briefings by the premier and health ministers to inform if the daily T2DM new diagnoses over the past month would rapidly increase public awareness and allow comparison over time with an instant way for the public to judge the success of societal prevention interventions.

The seriousness of this disease and the increasing impact of obesity and T2DM on our rural, regional and remote communities should not be underestimated, I encourage this senate committee to roll out actions that will lead to major changes to health care and take the lead with large scale preventative projects as well as providing basic specialist services to regional hospitals.